

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-7. (canceled)

8. (currently amended) A method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links, comprising:

determining an initial route, the initial route including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device, where the determining an initial route includes:

determining a short path from the destination device to the source device within the network,

refining the path according to administrative constraints, and

establishing the path as the initial route;

determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements, where the determining the alternative route includes:

checking bandwidth allocation;
forwarding packets on the initial route;
detecting a failed element; and
automatically forwarding packets on the alternative route without
communicating with either the source device or the destination device.

9. (canceled)
10. (currently amended) The method of claim [[9]] 8, wherein refining the path comprises rejecting the path exceeding bandwidth allocation and hop limit.
11. (currently amended) ~~The method of claim 8, wherein determining the alternative route further comprises~~ A method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links, comprising:
determining an initial route, the initial route including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device;
determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-

enabled node and the identified downstream interconnected elements, where the

determining the alternative route includes:

checking bandwidth allocation;

forwarding packets on the initial route;

detecting a failed element; and

automatically forwarding packets on the alternative route without

communicating with either the source device or the destination device,

where the determining the alternative route further includes:

determining a shortest route from a node preceding the failed
element to the destination device within the network;

refining the route to exclude the failed element on the initial route;

and

establishing the alternative route for forwarding packets.

12. (currently amended) The method of claim 8, wherein detecting a ~~failure~~
failed element is conducted locally by a node preceding the failed element without
requiring notification of a master server or an ingress node.

13. (currently amended) A method for forwarding packets from a source
device to a destination device in a network of interconnected elements including nodes
and links, comprising:

determining an initial route, the initial route including at least one
alternative-route-enabled node and at least one non-alternative-route-enabled node, the at

least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device;

determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements;

forwarding packets on the initial route;

detecting a failed element; and

automatically forwarding packets on the alternative route without communicating with either the source device or the destination device,

where determining the alternative route comprises:

reserving bandwidth available on the initial route,

generating the alternative route by invoking a routing protocol,

refining the alternative route by excluding the failed element, and

establishing the alternative route.

14. (currently amended) A method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links, comprising:

determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic;

determining an alternative route, the determining an alternative route
including:

checking bandwidth allocation;
forwarding packets on the initial route;
detecting a failed element; and
automatically forwarding packets on the alternative route without
communicating with either the source device or the destination device,

where the determining an alternative route further includes:

determining a shortest route from a node preceding the failed
element to the destination device within the network,

refining the route to exclude the failed element on the initial route,

and

establishing the alternative route for forwarding packets.

15. (canceled)

16. (previously presented) The method of claim 8, wherein checking
bandwidth allocation comprises dynamically balancing capacity of nodes and links.

17. (currently amended) A method for forwarding packets from a source
device to a destination device in a network of interconnected elements including nodes
and links, comprising:

determining an initial route, the initial route including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device;

determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements;

forwarding packets on the initial route;

detecting a failed element; and

automatically forwarding packets on the alternative route without communicating with either the source device or the destination device,

where determining the alternative route comprises:

reserving bandwidth available on the initial route,

identifying a plurality of nodes associated with the failed element according to network configuration information,

generating the alternative route excluding the failed element and the plurality of nodes, and

establishing the alternative route.

18. (previously presented) A method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails, the method comprising:

computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route, the computing comprises:

reserving bandwidth available on the established route,
identifying a plurality of nodes associated with the failed node
according to network configuration information,
generating the alternative route excluding the failed node and the plurality of nodes, and
establishing the alternative route;
storing, at each of the select intermediary nodes, the alternative route;
determining locally that the established route has failed; and
automatically forwarding packets on the alternative route.

19. (canceled)

20. (previously presented) The method of claim 18, wherein computing the alternative route further comprises:

locating a set of established routes with a same destination device and same administrative constraints as the established route;
finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements;
establishing a new route from the common node to the destination device;
and

incorporating the new route into the alternative route.

21. (original) The method of claim 18, wherein determining locally that the established route has failed is conducted by a signaling protocol.

22-24. (canceled)